WHAT IS CLAIMED IS:

1. A method for the production of a silicon single crystal comprising the steps of:

pulling the single crystal, according to the Czochralski method, from a melt which is held in a rotating crucible, the single crystal growing at a growth front; and

supplying heat deliberately to the center of the growth front by a heat flux directed at the growth front.

2. The method as claimed in claim 1, wherein a curvature of the growth front is reduced or increased.

3. The method as claimed in claim 1, wherein an axial temperature gradient G®) at the growth front is regulated, r extending from 0 as far as a radius of the growing single crystal.

4. The method as claimed in claim 1, wherein a temperature distribution, in which a radial variation of a temperature gradient Gs®) in the melt is less than 15%, is produced in a region with an extent of up to 5 cm below the

growth front and at least 90% of a diameter of the single crystal.

5. The method as claimed in claim 1, wherein the heat flux is produced by a heat source, which deliberately increases the temperature at a center of a bottom of the crucible compared with the temperature at an edge of the bottom of the crucible.

6. The method as claimed in claim 5, wherein a bottom heater is arranged below the crucible, and thermal insulation is used to ensure that the bottom heater heats the center of the bottom of the crucible more strongly than the edge of the bottom of the crucible.

7. The method as claimed in claim 5, wherein the heat source is arranged at the center of the bottom of the crucible.

8. The method as claimed in claim 5, wherein the temperature of the crucible at the center of the bottom of the crucible is increased by at least 2 K relative to the temperature at the edge of the bottom of the crucible.

9. The method as claimed in claim 1, wherein a heat source is arranged below the growth front in the melt.

10. The method as claimed in claim 1, wherein the heat flux is produced by iso-rotation of the single crystal and the crucible, the crucible being rotated with at least 10% of a rotational speed of the single crystal.

11. The method as claimed in claim 10, wherein the melt is exposed to a CUSP magnetic field.

12. The method as claimed in claim 10, wherein the melt is exposed to a traveling magnetic field.

13. The method as claimed in claim 1, wherein the heat flux is produced by an electromagnetic field to which the melt is exposed, at least 10% of a wall area of the crucible being shielded against an effect of the electromagnetic field on the melt.

14. The method as claimed in claim 13, wherein the heat flux is produced by a traveling magnetic field.

15. The method as claimed in claim 14, wherein a rotational symmetry of the electromagnetic field is broken by a partial shielding of the field.

16. The method as claimed in claim 1, wherein the heat flux is produced by applying a positive electrical voltage of more than 100 volts to the crucible.

17. The method as claimed in claim 1, wherein additional heat is supplied to a phase boundary of the single crystal, to the atmosphere surrounding the phase boundary and to the melt.

18. The method as claimed in claim 1, wherein the growing single crystal is cooled by a cooling device.

19. The method as claimed in claim 1, wherein a fluctuation of a pull rate when pulling a silicon single crystal with a diameter of at least 200 mm, with a pull rate at which neither defects due to agglomerated vacancies nor defects due to agglomerated interstitial atoms are created, is at least ±0.02 mm/min while the single crystal is being pulled over a length of at least 30 mm.

20. A silicon single crystal with an oxygen content of from $4*10^{17}$ cm^{-3} to $7.2*10^{17}$ cm^{-3} and a radial concentration change for boron or phosphorus of less than 5%, which has no agglomerated self-point defects.

21. The single crystal as claimed in claim 20, which is doped with nitrogen and/or carbon.

22. The single crystal as claimed in claim 20, with a radial oxygen concentration variation (ROV) of at most 5%.

23. Semiconductor wafers separated from a single crystal as claimed in claim 20.

24. Silicon semiconductor wafers with agglomerated vacancy defects (COPs) as an only self-point defect type, said defects having a variation in their average diameter of less than 10% and being present on a circular surface of the semiconductor wafers, the diameter of the circular surface being at least 90% of the diameter of the semiconductor wafers.

25. Silicon semiconductor wafers with agglomerated vacancy defects (COPs) as a defect type, these defects being covered with an oxide layer whose thickness is less than 1 nm.

26. The semiconductor wafers as claimed in claim 25, wherein said defects have an average diameter of less than 50 nm.

27. Silicon semiconductor wafers which are free of agglomerated self-point defects and have two or more mutually separated axially symmetric regions, in which unagglomerated vacancies dominate as the defect type.

28. Silicon semiconductor wafers which are free of agglomerated self-point defects and have two or more mutually separated axially symmetric regions, in which unagglomerated interstitial silicon atoms dominate as the defect type.

29. Silicon semiconductor wafers with agglomerated interstitial atoms (LPITs) as a defect type, wherein said agglomerated interstitial atoms are so small that no secondary dislocations are also present.

30. Silicon semiconductor wafers having at least one region with agglomerated vacancy defects (COPs) as a defect type, said defects being covered with an oxide layer whose thickness is less than 1 nm, and at least one region with agglomerated interstitial atoms (LPITs) as the defect type, wherein said agglomerated interstitial atoms are so small that no secondary dislocations are also present.

31. Semiconductor wafers as claimed in claim 30, the agglomerated vacancy defects having an average diameter of less than 50 nm.

32. A device for the production of a single crystal according to the Czochralski method, comprising:

a crucible which contains a melt;

a heating device surrounding the crucible;

a magnetic instrument surrounding the crucible and producing a static or dynamic magnetic field;

a heat source arranged above the melt and supplying heat to the phase boundary of the single crystal, to the gas phase and to the melt;

a cooling device surrounding the single crystal;

a heat shield surrounding the single crystal; and

a control unit which causes iso-rotation of the single crystal and the crucible.